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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,226	10/10/2003	Bruce Rutherford	32087/1010	8629

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EXAMINER
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O'CONNOR, CARY E

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/684,226	<b>Applicant(s)</b> RUTHERFORD	
	<b>Examiner</b> Cary E. O'Connor	<b>Art Unit</b> 3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-81 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50-59 and 62-71 is/are allowed.
- 6) ☒ Claim(s) 1,4-16,24-34,41-49,60,61 and 72-81 is/are rejected.
- 7) ☒ Claim(s) 2,3,17-23 and 35-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### **DETAILED ACTION**

Applicant is advised that should claim 46 be found allowable, claim 47 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Election/Restrictions***

Applicant's election of Group I (claims 1-49) with traverse is acknowledged. Because of the filing of a related international application, all claims will be examined.

### ***Claim Objections***

Claims 73-76 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 73-76 are dependent upon claim 77 which is not a previous claim.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 31, 43-45, 60, 61, 77-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 recites the limitation "The method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 43 recites the limitation "The method" in 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 44 recites the limitation "The method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 45 recites the limitation "The method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 60 recites the limitation "The method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 61 recites the limitation "The method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 77 is dependent upon itself.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 9-16, 27-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mooney et al (5,885,829). Mooney discloses for treating a tooth that needs regeneration of dentin comprising forming a hole in the tooth to expose at least a portion of pulp, inserting a tissue scaffold into the hole to contact the pulp, and regenerating

dentine (see column 7, lines 44-46; column 16, lines 10-23; column 21, lines 27-28; column 38, line 44 to column 39, line 42; column 45, lines 32-33; paragraph bridging columns 61 and 62)

Claims 72, 75-81 are rejected under 35 U.S.C. 102(b) as being anticipated by Oliva et al (4,822,278). Oliva shows a vacuum manipulator comprising a vacuum tube having a proximal end, a distal end, and walls between the ends enclosing the vacuum tube, a suction cup 40 attached the proximal end of the tube, and a valve assembly 32 at the distal end of the tube to close and open fluid access between the tube and a vacuum source 26. As to claim 77, note the hose 22. As to claim 75, note that the vacuum tube has a bend along the length. As to claim 76, the specific kind of vacuum source cannot be given weight in the claim because a vacuum source is not positively claimed. As to claims 78-79, ambient air can be introduced into the tube via valve assembly 32.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mooney et al (5,885,829). Mooney discloses the claimed invention except for the dimensions of the scaffold. It would have been an obvious matter of design choice to form the scaffold formed of a cylindrical wafer having a diameter of between 2 and 5 mm and a height of

between 0.1 and 0.5 mm, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mooney et al (5,885,829) in view of Shi et al (2004/0058442). Mooney does not disclose using dental stem cells in method. Shi teaches the use of dental stem cells to regenerate dentin/pulp tissue because they can regenerate both dentin and pulp. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dental stem cells in the method of Mooney, in view of Shi, so that both dentine and pulp could be generated if required.

Claims 7, 8, 24-26, 34, 41-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mooney et al (5,885,829) in view of Kato (5,871,360). Mooney does not disclose the association of calcium phosphate and fluoride with the scaffold. Shi discloses a dental filling material comprising fluoride and calcium phosphate (column 5, last paragraph). It would have been obvious to one of ordinary skill in the art at the time the invention was made to fill the opening created in the method of Mooney with the filling material of Kato, because it would strengthen the tooth and prevent caries (column 5, lines 18-21).

Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oliva et al (4,822,278) in view of Groves (2,885,782). The valve assembly of Oliva is not manipulated by a manual dial. Groves shows a vacuum device comprising a valve assembly manipulated by a manual dial 80. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to replace the valve assembly of Oliva with the valve assembly of Groves, because it would be easier to precisely control the pressure in the vacuum tube.

Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oliva et al (4,822,278) in view of Moore et al (5,855,562). Oliva does not include an in-line filter to prevent the passage of pathogens into the system. Moore shows a dental vacuum system having an in-line filter 22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the vacuum manipulator of Oliva with an in-line filter, as taught by Moore, in order to prevent the egress of pathogens into the vacuum system.

#### ***Allowable Subject Matter***

Claims 50-59, 62-71 are allowed.

Claims 60 and 61 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 2, 3, 17-23, 35-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Drawings***

The corrected or substitute drawings were received on May 20, 2004. These drawings are not approved.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the

description: 72 and 80. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 81, 85, 87 and 89. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

The disclosure is objected to because of the following informalities: There is an incomplete sentence in paragraph 00332.

Appropriate correction is required.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cary E. O'Connor whose telephone number is 571-272-4715. The examiner can normally be reached on M-Th 7:00-3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Cary E. O'Connor  
Primary Examiner  
Art Unit 3732

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